

## GREEN MANURING

## Cow Peas

Who has not heard of the cow pea as a hay-making and a soil improving plant? And, who has not been led to believe that one third or more of the nitrogen and other plant food elements found in this plant at maturity, are left in the roots and stubble after the crop is harvested and cured for hay—that is to say—out of every hundred pounds of nitrogen, etc., found in the pea crop at maturity, 33 1-3 pounds are the roots and stubble.

This was our best information up to a short time ago and even now some of our best agricultural advisers insist on the proverbial third of the nitrogen, etc., being left in the underground portion of the plant. Like the old idea of the souring of the soil on well drained land, some man seems to have guessed at the amount of nitrogen, etc., left in the roots and stubble and hastened to rush his intuition into print.

Now a ton of cured cow peas has, in the whole plant about, 40 pounds of nitrogen. If one-third of this amount were in the roots and stubble we would have left on the soil and in the soil about 14 pounds of available nitrogen per acre in case the acre produced a ton of cow pea hay. This amount of nitrogen is equal to that furnished by 700 pounds of an 8-2-2 fertilizer—a pretty heavy application for most farm crops. This seemed to be rather weighty argument in favor of cutting the vines, feeding them to live stock, and putting the manure back on the land regardless of the fact that the manure from a ton of cow peas hay fed to cattle will cover—well, what part of the acre will it cover?

Our farmers have been acting on this advice for a number of years in the face of the daily decreasing fertility of their lands under this system. Mr. W. A. Marsh, of Union county took this advice literally, sowed oats, cut and removed them, then sowed cow peas on the oat stubble and cut these for hay when mature. This practice was continued till his land would not produce a crop even of peas. Examples could be multiplied where the pea crop has been removed year after year with disastrous results. Indeed, it now seems that the surest method of depleting the fertility of the soil is to remove a crop of cow pea vines from it every year for a few years in succession.

The real explanation of this phenomenon has finally been discovered. In an exhaustive series of tests and experiments conducted by a number of our best experiment stations it has been found that the amount of nitrogen, etc., left in the roots and stubble of the cow pea plant is not one-third but about one-tenth of that found in the whole plant. Here seems to be one of the leading factors in the explanation of the running down of average soils by the annual removal of the pea crop. Another, and, perhaps, the leading factor, is that all the organic matter is removed from the soil for a series of years by this method and thus all bacterial life is driven from the land which is thereby rendered dead. These dead soils are not necessarily robbed of their mineral plant foods, however, as will be demonstrated by plowing down a cow pea crop or a good crop of rye for a year or two in succession.

One ton of green cow pea vines contains about 5.5 pounds of nitrogen; 2 pounds of phosphate, and 6 pounds of potash. It is an easy matter, on average soil, to get a growth of 12 tons of some one of the rank growing varieties per acre, which will cure up into three tons of hay.

Composition of green cow pea vines compared with composition of fresh cow and horse manure:

	Nitro-	Phos-	gen.	phate	Pot'h
Green cow pea vines	5.4	2			6.2
Fresh cow manure	7.6	1.6			7.3
Fresh horse manure	8.7	1.9			7.3

With this yield per acre there would be produced on a ten-acre field 120 tons of green pea vines which, if cut to pieces with a sharp disc harrow, plowed under, and thoroughly incorporated with the whole soil stratum, would add to this field about 650 pounds of nitrogen and render available 240 pounds of phosphate and about 750 pounds of potash.

By thus using the pea crop as green manure the farmer gets from the air as much nitrogen in the first ten inches of the soil of his 10-acre field as he would get from 86 tons of manure or from 16 tons of an 8-2-2 fertilizer. He gets as much phosphate rendered available to the succeeding crop as he would get from 150 tons of manure or from 1 1-2 tons of an 8-2-2 fertilizer. The potash thus rendered available is equal to that obtained from over 100 tons of manure or from nearly 19 tons of an 8-2-2 fertilizer. And the humus obtained from this amount of vegetable matter turned into the soil will be sufficient to feed bacterial life for years to come and will add immensely to mechanical conditions and water holding capacity of the land.

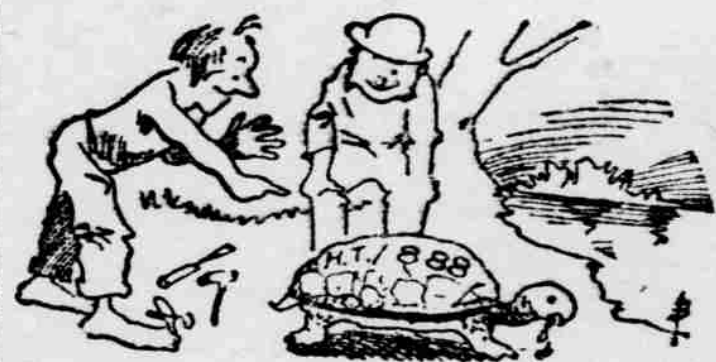
The results of having lost sight of the fact that the humus or organic matter content of the soil is the basis of all successful farming have been appalling not only in North Carolina, but over the whole South. Can we

afford to reduce the vitality of our lands still further and hope to retain ownership of them? When we have finished this series of articles on feasible methods of said improvement we expect to take up and outline a condition that is even now settling down like a pall over the farmers of North Carolina.

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## An Old Pet

A farmer living in southern Pennsylvania, went swimming very frequently last summer in Green Lake. On one occasion of his toes was suddenly caught and held with a vice-like grip. He sputtered and tried to get loose all the way to the shore, al-



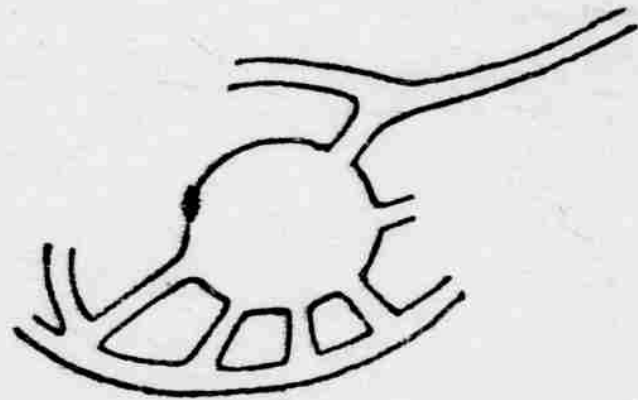
most fainting with the exertion. His catch was a large snapping turtle which had to be removed from his toe with a chisel and hammer. The following inscription was found carved on the shell: "H. T. 1888." "Why," gasped the astonished farmer, "I carved that on a pet turtle when I was fifteen years old, and I've been looking for him ever since. He found me, first, however."

## How the Mole Lives

Moles feed entirely on earthworms, burrowing grubs, and on insects, and have a remarkable appetite, together with love, passion and hatred in energy and voracity.

They are built particularly for their business—fore limbs and shoulders remarkably strong, full of muscle, and have a hand, spade-like, supplied with claws, making a capital digging machine.

In observing a mole when put on the ground after being caught it will immediately plunge its sharp snout in the earth and give two or three fearful strikes of fore-paws enough to bury most of his body—the hind feet give a comical kick in the air and the mole gets out of sight with a startling quickness and find him if you can.



## A Mole's Home.

The mole-hills which we see are not homes but composed of material which is worked over in forming temporary passages looking after prey.

A mole's only true home, fortress or kingdom, is located at a distance from the hunting-grounds with which communication is kept up.

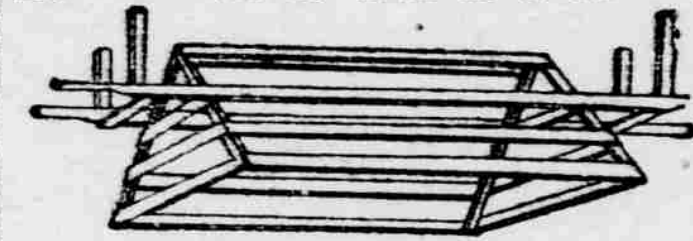
A mole will consume the weight of its body in a remarkably short time.

Snails and slugs it seizes from behind before they know a mole is after them. Another wonderful thing is how soon a mole will succumb without food, as a twelve hour's fast will result in death for the little animal and all of its family.

Therefore, the poor mole has to work hard most of its life for a living, and especially is this true in the winter.

## Light Feeding-Rack

The rack shown in the illustration is handy for feeding animals in enclosures, as it can easily be moved from one place to another. It could be strongly constructed and of any size desired. The rack and frame are made separately and when inverted, the rack can be used as a chicken-



coop, and the stand for a number of purposes, such as holding tubs, boxes, and other receptacles. A convenient size is about four feet long by two and a half feet deep and the same width. The handle should extend at least two feet beyond the end of the rack.

The family needs fresh air in cold, just as much as in hot weather. It is a mistake to so fasten storm-windows that they cannot be opened. Better no storm windows at all. For more disease comes from poor ventilation than from insufficient warmth. Storm windows save coal; but, unless so put up that they do not prevent ventilation, they multiply doctors' bills.

## Growing and Fattening Hogs

(Atlanta Constitution.)

The indications are that the farmers are giving more attention to the production of pork than for some years past.

One of these indications is the number of inquiries received for remedies against disease and abnormal conditions of pigs that farmers have to contend against. These inquiries show that farmers have not yet learned the importance of feeding according to the age of the animals, and with regard to the immediate purpose of the feeding. Some farmers make no difference whatever in the character of the feed for young pigs and shoats and the feeding for fattening purposes. My attention has been called at this time to the matter of feeding by a most excellent editorial by Dr. Tait Butler in the Progressive Farmer of December 9, the same being No. 42 of a series of articles on live stock. (By the way, I think Dr. Butler would render an important service to the farmers of the South by reproducing this series in pamphlet form for distribution at 25 cents per copy.)

In the article now before me he writes:

"A hog weighing 100 pounds the 1st of August or the 1st of September may be easily made to weigh 250 pounds by December 1 or January 1 (a feeding period of 120 days), if handled as we have suggested in this series of articles."

"A pig farrowed March 1 is five months old August 1, or one farrowed April 1 is five months old September 1, and should weigh 100 pounds. This suggests a weight of 250 pounds at nine months old and is about what should be expected from well-bred pigs, well cared for on a well-managed farm."

I think the above statements are very moderate. Higher results might easily be attained by extra attention. With a good breed (Red Jersey) I have had a bunch of 11-months-old pigs to net 350 pounds of pork, and I have known Berkshires to kick the beam at 100 pounds more at 12 months of age. But these weights are by no means desirable. Two hundred to 250 pounds weight of net pork is heavy enough and will be found much more profitable. To come within this limit the pigs must be so managed as to be ready for slaughter at 9 months old, and to attain this the pigs should be farrowed in March, so as to be at the right age and of the desired weight along in December. It is therefore manifest that the farmer should control the farrowing date within narrow limits, and there is no difficulty in doing this. While a sow may be managed so as to bring three litters of pigs in a year (by early weaning), I have long believed and advised that she should be limited to two litters, one early in March and the second early in September—six months apart. My idea is that the March pigs should be pushed from the start so as to net 200 to 250 pounds of pork in December, and this generation should be sufficient in number to yield a full year's supply of pork and bacon for the farmer's family and, at least, his wage hands. The problem then is what should be done with the second, or September, litter of pigs? The answer is—push them also from the start and sell the dressed carcasses of fresh eating along in November and December. The butchers are always glad to get dressed carcasses for fresh eating pounds, for retailing to their daily customers, and I never had any trouble in disposing of all that I could supply.

This practice, as advised and followed by me, is based on the rule that I got from some old pork raiser many years ago, viz.: "Never let a pork hog see a Christmas." This means that the farmer should not, as a rule, carry through the winter, say November, December, January and February, any but the breeding hogs. I still believe it to be a good general rule. It saves a good deal of care and a good deal of feedstuffs to have only a few well-grown, mature breeders to feed and look after during the four months named when a much larger proportion of the feed consumed would be simply to maintain the animal heat and functions, and a much smaller proportion will find its way to the pork barrel—more than a year in the future.

The burden of the article by Dr. B. is the importance of feeding the pigs on a properly proportioned feed, so that the young, growing animals will be properly nourished in bone and muscle, so that they will grow rapidly and vigorously and be prepared when the cooler weather of fall comes to take on fat and be ready for the butchering. It is a great mistake to rely too much on corn as a feed for hogs at any period of their lives, but especially during the growing period. Good pasture is indispensable, and there is none better than Bermuda grass—the South's unequalled own—supplemented by any one or more of half dozen other crops that may be easily grown. Corn is a good feed for hogs of all ages if properly balanced by adding wheat middlings, bran, shorts, soy beans, oats, cow peas, tankage, etc., always including good pas-

turage. Even for fattening hogs it is not a balanced food, and therefore not so profitable and wholesome when fed alone for more than a week or two. Indeed, it is better not to rely on corn alone for even a few days. Tankage is a very concentrated food, rich in protein (muscle and bone-formers) and may be used in the proportion of about 5 or 6 pounds of tankage to each bushel of corn. For growing pigs the proportion of tankage may be twice as great.

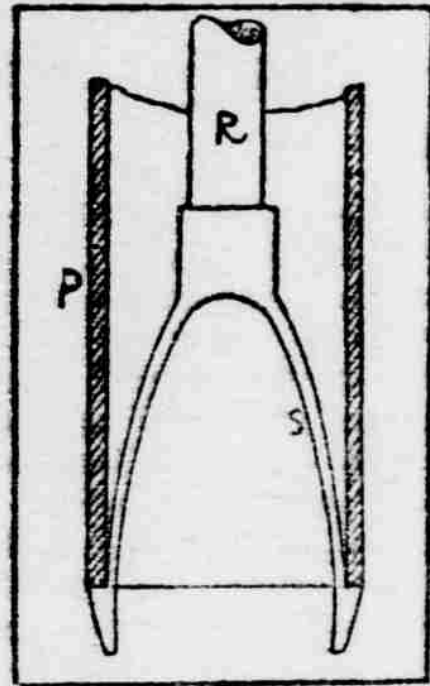
For the reasons already given peanuts alone, or sweet potatoes alone, is unbalanced, the first containing too much oil and the last too much starch, and also too large a bulk. Of all abominations deliver me from the pig in a pen, fed on corn and "dish-water," or so-called "slops." Give the pig liberty to "root, pig, or die." In other words, a chance to exercise, eat grass and roots and drink clean water, with as much good grain twice a day as it will eat.

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## TO LIFT SMOOTH PIPE.

It is no easy job to lift vertical pipes, well-castings, etc., out of the ground, but the use of the device shown here makes it easy. Two pieces of strong spring steel (S) are welded to the end of an iron rod (R) and formed in the shape of a catch at the end.



The implement should be pushed down through the pipe (P) until the catches on the ends of the springs slip over the lower edges of the pipe. Power can now be applied to the rope or chain attached to the springs, and the pipe lifted from its place.

## Queen's Golden Popcorn

With me this has proven the best of all the popcorns. It grows large and tender stalks and the ears are large, both in grain and cob.

Its popping quality is excellent leaving no hard centre, but large tender and very palatable kernels, while the large yellow grain reminds one of some of the yellow field corns, yet we are happily disappointed when we



pop and eat it. This corn readily brings \$2 per bushel on the ear in the home market and is a profitable corn to grow, needing only the same amount of fertilization and cultivation as common field corn. The stalks are also good to use for ensilage.—S. Van Aken.

## A Useful Sled

It is sometimes difficult to get manure out to the field in winter, and then a sled comes in very handy.

If it is balanced on a short frame, the contents can be easily dumped



in piles as wanted. It is much better to have a sled of this kind, and for this purpose alone, than to use the bob-sleds which are generally in use. Of course this is a mighty poor substitute for a manure-spreader, but it is better to use it and get the manure out in the fields, than to allow it to run to waste near the barn.